

## **Packaging for a Dental Implant**

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The invention relates to a packaging for a dental implant, comprising in particular an implant holder and an enclosure.

### **Background of the invention**

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Dental implants are generally supplied by the manufacturer in prefabricated form, and the dentist or oral surgeon inserts them into the human jaw. It is practical for the implants to be supplied in the sterile state. For specialized implants, special drills are provided which likewise are supplied in the sterile state.

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Packagings for holding, transporting, storing, and removing dental implants, or associated parts such as drills, are known in various designs. Many have a tubular shape and are not stable when standing.

The object of the present invention is to provide a packaging that is stable when standing and that allows practical removal which preserves sterility, if necessary.

### **Summary of the invention**

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The object is achieved according to the invention by a packaging for a dental implant having a rigid enclosure and an implant holder situated therein, whereby the enclosure is able to stand on two different planes, has a receptacle for the implant holder and an opening for access to the implant holder, and/or an implant held in the implant holder, and the implant holder has a recess for accommodating the implant.

### **Detailed description**

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It is particularly advantageous that the implant is sterile and can be stably stored, that the packaging is stable when standing and easy to open, and that the implant is easily removable free of touch. "Free of touch" means that the implant does not have to be manipulated by the human hand, but instead can be removed in the sterile state, using the implement with which it is further manipulated or inserted in the jaw.

In one embodiment the holder can be removed from the enclosure and, likewise as for the enclosure, is able to stand on two planes lying essentially perpendicular to one another. The holder advantageously has the design of a small table; i.e.; the plate with the slit has either four feet or two laterally attached standing plates. It is  
5 advantageous if the holder can be attached by pushing it into the enclosure and can be locked by means of a locking element. Conversely, the locking element can be detached and the holder removed.

In a further embodiment, the implant holder is attached in the enclosure essentially parallel to one of the standing planes. It is advantageous if the implant holder is  
10 designed as a plate, and guides for the plate are provided on the enclosure. However, the attachment can also be achieved in another manner, such as by using a pushbutton-like snap-in device.

The plate, which in this embodiment represents the implant holder, is preferably designed as a titanium sheet.

15 The enclosure is generally sealed with foil, in particular with a sealing foil, along one surface.

In one embodiment the recess is designed as a tapering slit for accommodating the implant, the slit being made of elastic material or lined with a lip made of elastic material.

20 In a further embodiment, the recess is provided with round cutouts for accommodating cylindrical shapes, and is elastically movable so that cylindrical parts to be accommodated can engage and disengage.

Preferred embodiments of the packaging are described in detail below, with reference to the figures:

25 Brief description of the drawings

Figure 1 shows enclosure 1 and, thereunder, implant holder 2 which can engage therein;

Figure 2 shows in detail the fundamental design of the implant holder;

Figure 3 shows enclosure 1 with the plate-shaped implant holder inserted therein, in two views. View b shows the implant clamped in; and

Figure 4 shows the corresponding plate-shaped implant holder.

In one embodiment, implant holder 2, preferably made of plastic, essentially has the appearance of a small table. The surface has a recess (slit) 3 which tapers inwardly. In the simplest design, implant 9 is clamped into this slit 3. Implant holder 2 is inserted into a likewise stable enclosure 1 and is optionally affixed using a locking element 4. Enclosure 1 may be sterilely sealed over surface 5, preferably using a peelable foil. The foil makes a seal with enclosure 1 to provide a sterilizable packaging. It is advantageous for enclosure 1 to essentially have the shape of a parallelepiped cut in half diagonally, so that the enclosure can be stood up on planes 6 and 7. The enclosure is preferably made of transparent plastic in the form of blister packaging, and sealed with an aluminum foil.

For use, first the foil is peeled off. The implement can then be directly latched onto implant 9, and implant 9 is removed. Alternatively, implant holder 2 can be removed from the packaging beforehand. In this case, implant holder 2 can be compressed to detach the locking element and be provided with appropriate hand grips. Alternatively, locking element 4 may be omitted.

Slit 3 may have the design shown in Figure 1. In this embodiment, implant 9 simply clamps into slit 3 before it is removed. Accordingly, for a firm hold it is advantageous if slit 3 is encased in a soft material. A design as shown in Figure 2 may also be provided. In this case, slit 3 progressively tapers, as shown for example in the shape of a snowman. It is possible to place implant 9 and holder 2 with different specified diameters (as shown here,  $\varnothing$  of size 1 to 3) in position 2. A drill and implant 9 may be packaged together in a kit. Implant 9 or the drill rest in a fixed position but are still easily removable, due to either the elasticity of the plastic or because slit 3 is elastically spreadable. Implant holder 2 may also contain a separate clamping part for accommodating implant 9, and once again contains slit 3. In this manner it is possible to fabricate holder 2 of plastic, and the clamping part with slit 3, of titanium. The clamping part can have a tapering slit 3 for accommodating implant 9, the slit being made of elastic material or having a lip lined with elastic material.

The clamping part can also have a slit 3 with round cutouts for accommodating cylindrical shapes and which is elastically movable, so that the cylindrical parts can engage and disengage.

Particular advantages of the implant packaging (stand with slit 3 and enclosure 1) are as follows:

Enclosure 1:

- Enclosure 1 is stable when standing, in two planes (in addition to surface 5): flat and upright.
- Implant holder 2 is preferably held in enclosure 1 by a locking element.
- Implant 9 can be directly removed from enclosure 1 using a dental implement.

Implant holder (stand) 2

- The implant holder can be used as a receptacle for various implant diameters (Figure 2). By virtue of the universal receptacle for implant holder 2 and drill holder, the packaging can be used for the entire implant system, in the form of a kit.
- The stand holds implant 9 only on the polished top side.
- Implant 9 is firmly held in the receptacle as the result of a positive form fit.

(In the exemplary embodiments the material matches the diameter of implant 9 or the drill, or slit 3 is provided with curvatures for accommodating cylindrical shapes and is elastically movable, so that the cylindrical parts engage and disengage (see Figure 4)).

- Implant holder 2 can be removed from enclosure 1 and stood up in a stable position.
- In this case implant 9 can be removed from implant holder 2, using a dental implement.
- Implant holder 2 can be used as a display by the dentist or dental assistant.

Enclosure 1 is advantageously situated within an outer packaging. The outer packaging is usually a folding cardboard box on which information about the contents is printed.

In a further embodiment (Figure 3) the surface having slit 3 is designed as a titanium sheet and is firmly inserted into enclosure 1. Thus, the function of a separate table is no longer realized. However, there are advantages due to simplification of production. Slit 3 once again has round cutouts for accommodating cylindrical shapes and is elastically movable, so that the cylindrical parts can engage and disengage (shown in detail in Figure 4).

Furthermore, it is preferable for the packaging to have one or more of the following features:

Implant 9 can be removed using an implement while standing on plane 6 as well as on plane 7.

Planes 6 and 7 are essentially perpendicular to one another.

Enclosure 1 and implant holder 2 are sterilizable.

The opening is sealed with foil.

Implant holder 2 is removable from enclosure 1, and, likewise as for enclosure 1, is able to stand on two different planes 6 and 7.

Implant holder 2 can be attached by pushing it into enclosure 1, is lockable by means of a locking element 4, and can be removed once again.

Recess 3 is designed as a tapering slit for accommodating implant 9, the slit being made of elastic material or lined with a lip made of elastic material.

Implant holder 2 is attached in enclosure 1 essentially parallel to one of standing planes 6 and 7.

Recess 3 is provided with round cutouts for accommodating cylindrical shapes and is elastically movable, so that cylindrical parts to be accommodated can be engaged and disengaged (Figure 4). The cutouts each describe only a portion of a circular shape, as shown in Figure 4.

Implant holder 2 is designed as a titanium sheet.